FIG. 1

FIG. 2

Baseband representation

Power spectrum

$f_S/2$

f_S
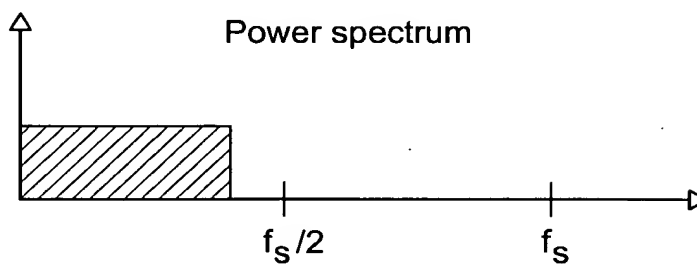
Equivalent low-pass representation
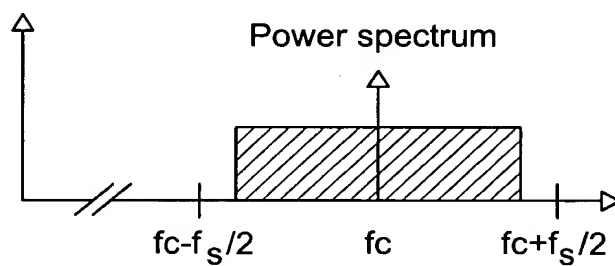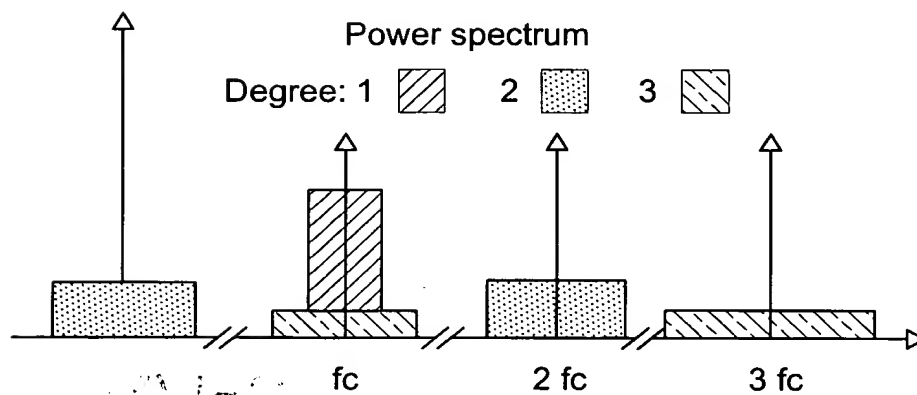
Power spectrum

$fc-f_S/2$ fc $fc+f_S/2$

FIG. 3

Power spectrum

Degree: 1 2 3

fc $2fc$ $3fc$

FIG. 4

Power spectrum

fc_1 fc_2 fc_3 fc_4

FIG. 5

Set
conservative
settings

Simulate
&
Capture

Determine
frequency
bands

Join
adjacent
bands

FIG. 6

time ⟶ ▷ Oscillator

SignalGen ⟶ ▷ Mixer ⟶ ▷ Filter

FIG. 7

x ▷ | H_1 | y ▷ | H_2 | z ▷

x ▷ | H | z ▷

H = cascade (H_1, H_2)

FIG. 8

in ▷ | **+** | sum ▷ | Flt 1 | intern ▷ | Flt 2

out
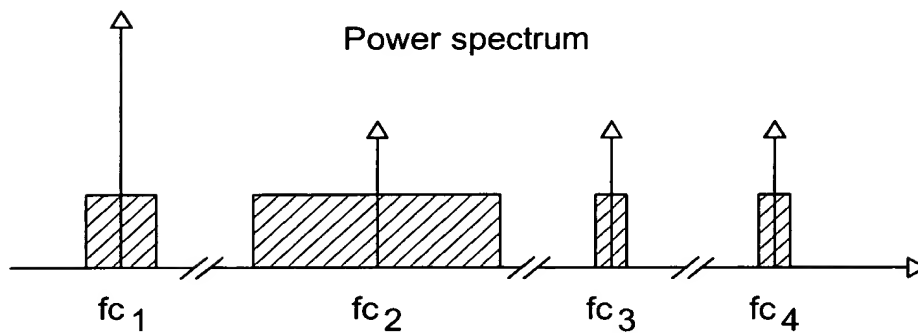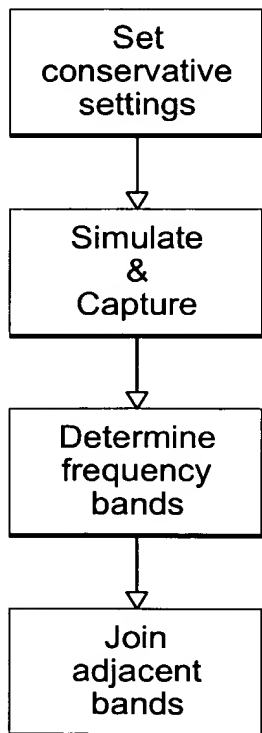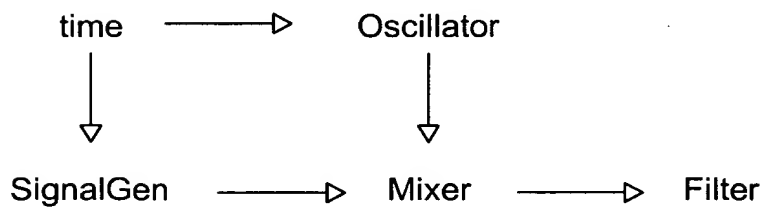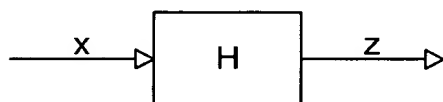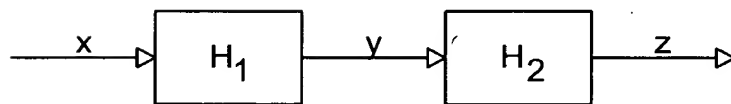
FIG. 9

FIG. 10

FIG. 11

FIG. 12

FIG. 13
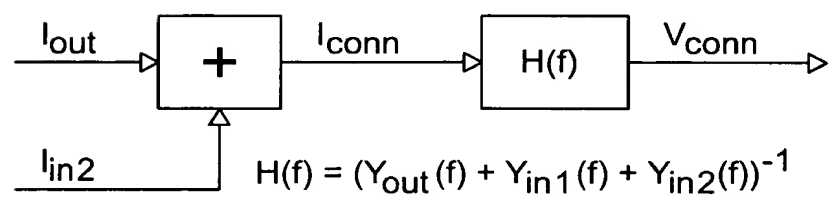
FIG. 14
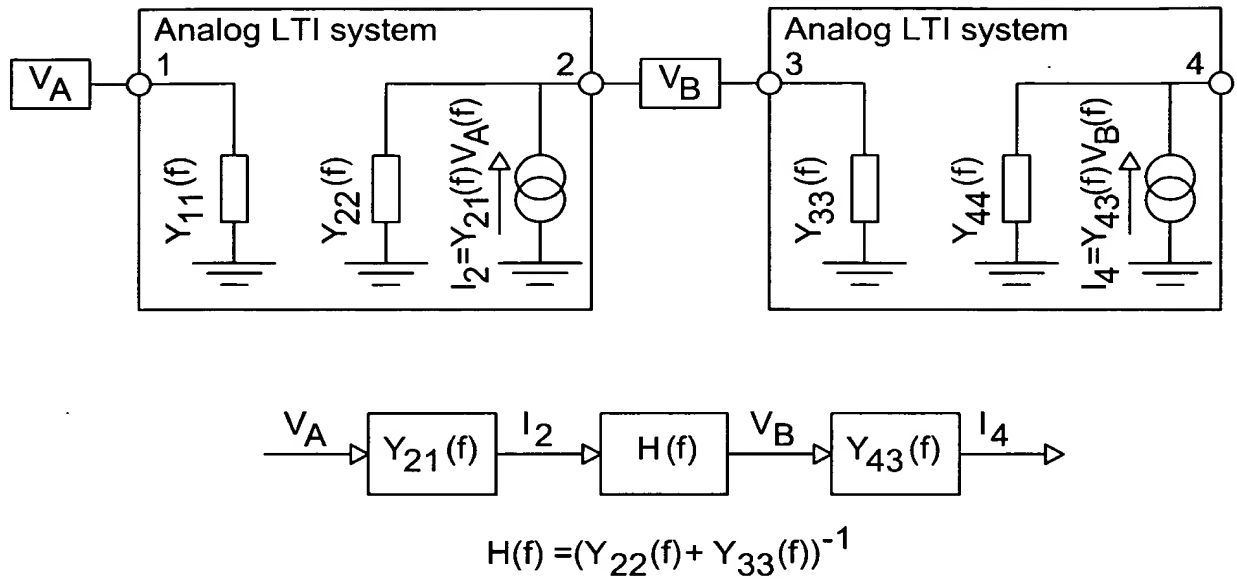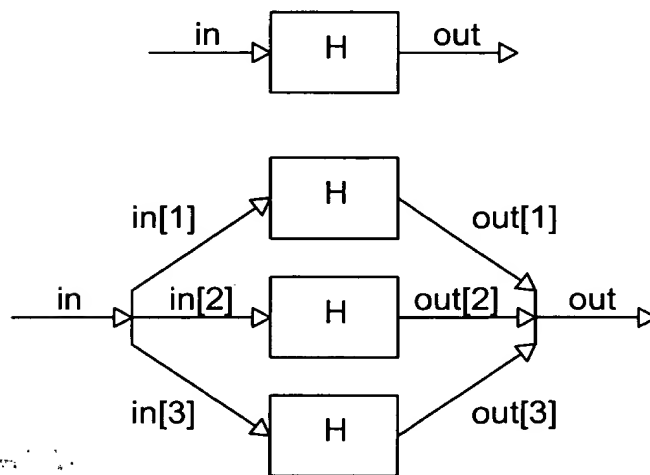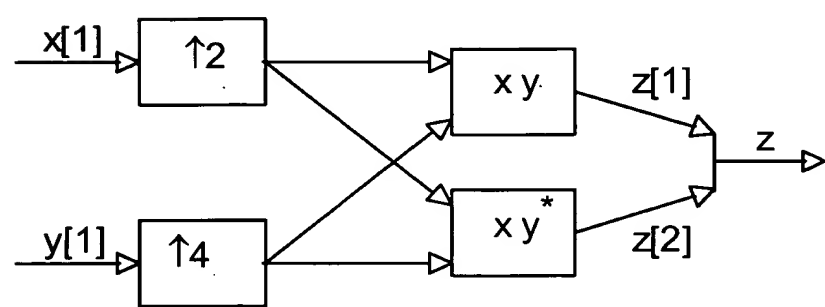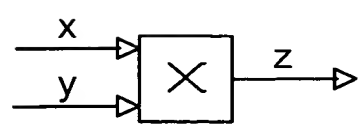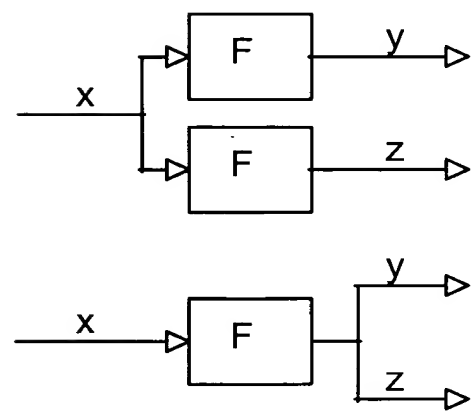
$$H(f) = (Y_{out}(f) + Y_{in1}(f) + Y_{in2}(f))^{-1}$$

$$H(f) = (Y_{22}(f) + Y_{33}(f))^{-1}$$

FIG. 15

FIG. 16

FIG. 17

FIG. 18

FIG. 19

$$H = H_1 + H_2$$

FIG. 20

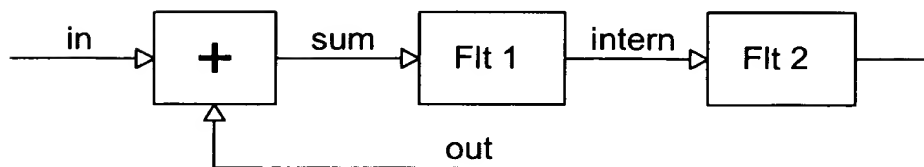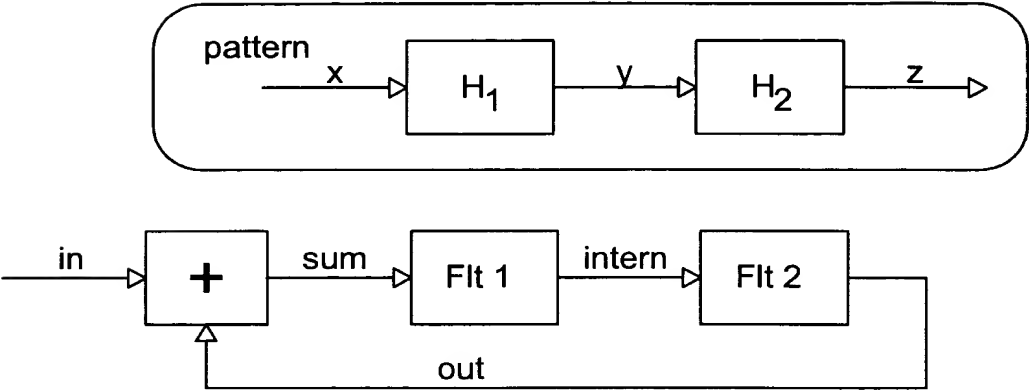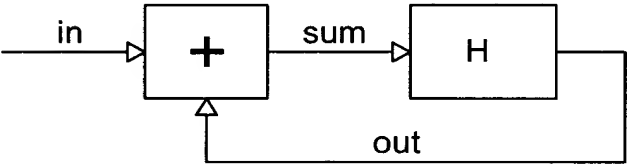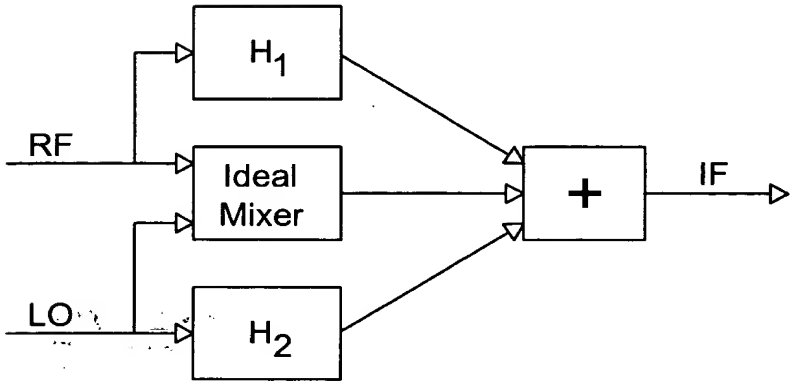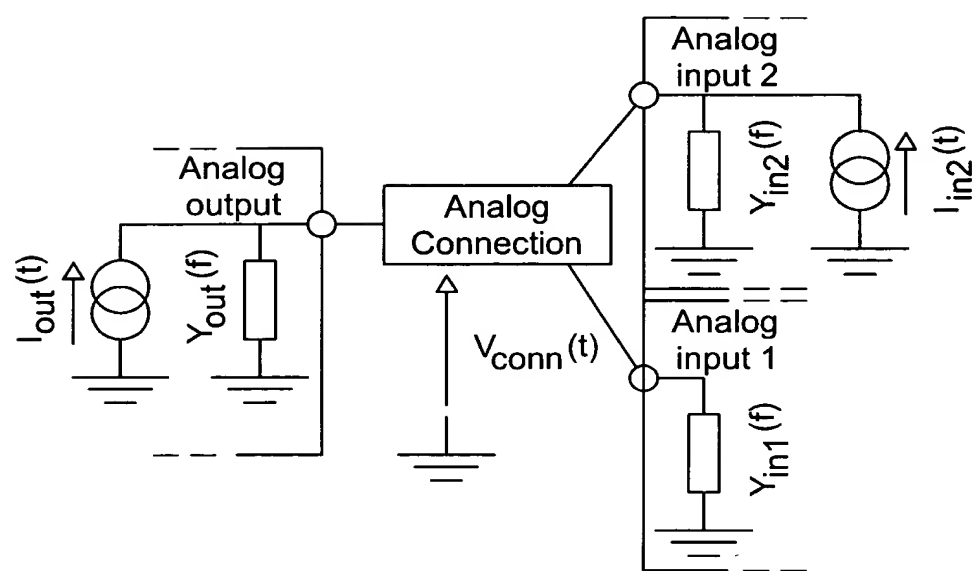$$x \rightarrow \boxed{H_1} \xrightarrow{y} \boxed{H_2} \xrightarrow{z}$$

$$x \rightarrow \boxed{H} \xrightarrow{z}$$
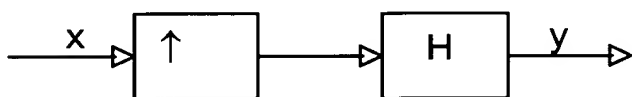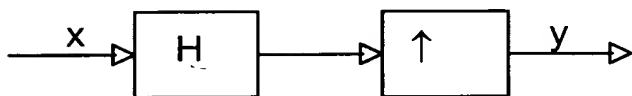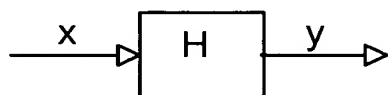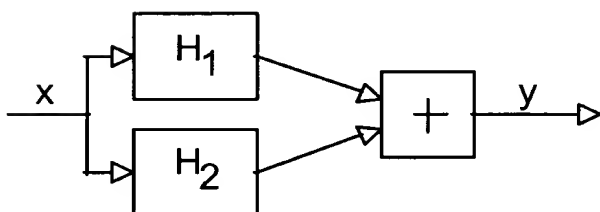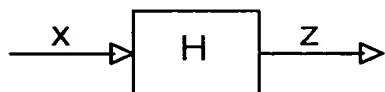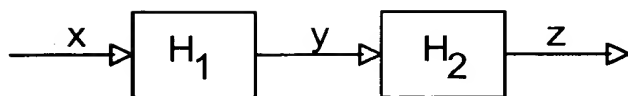
$$H = \text{cascade} (H_1, H_2)$$

FIG. 21

$$x \rightarrow \boxed{+} \rightarrow \boxed{H_1} \xrightarrow{y}$$

$$\boxed{H_2}$$

$$x \rightarrow \boxed{H} \xrightarrow{y}$$
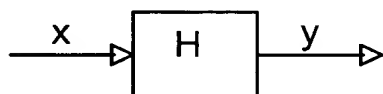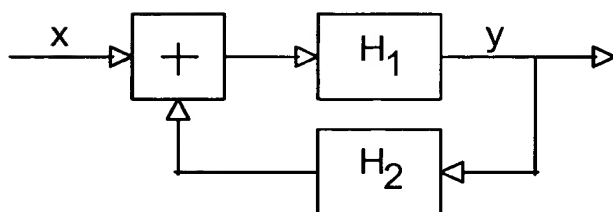
$$H = H_1 / (1 - H_1 H_2)$$

FIG. 22
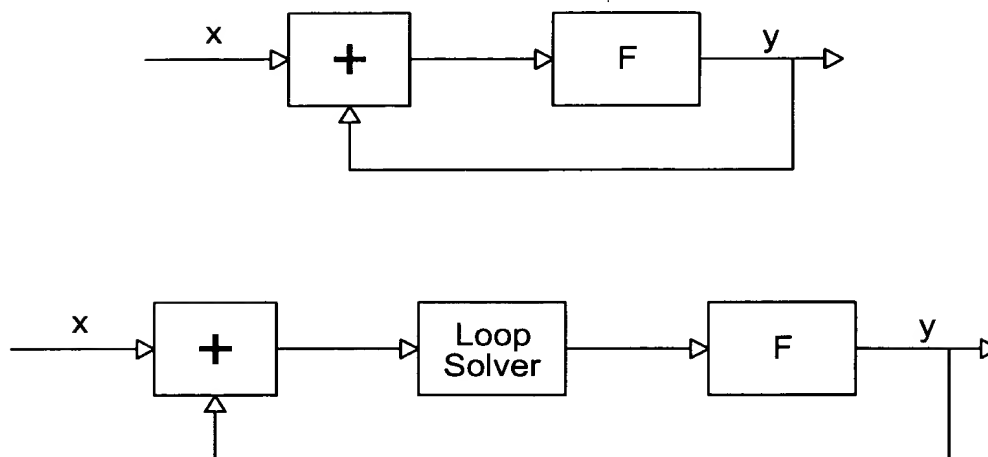
FIG. 23
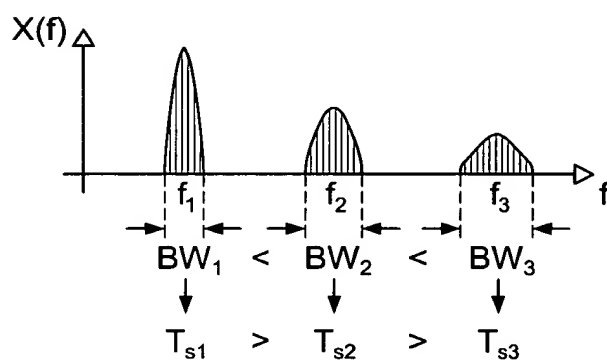
FIG. 24

Spectral representation of an MRMC signal

FIG. 25

Input Circuit (graphical, text format)

Perform Preliminary Simulation

Determine signal representations

Simplify signal representations

Construct Computational graph

Add up/down sampling nodes

Split linear subcircuits in plurality of nodes

Determine computation method for nonlinear circuits

Scheduling of computation nodes - preferring vector processing modes

Executed Scheduled Computation Rules

FIG. 26

FIG. 27